IN THE CLAIMS:

Please amend claims 2-4, 9, 10, 16, and 27 as follows:

1. (Previously Presented) A digital imbalance correction device, comprising:

an input unit configured to receive first input signals containing a plurality of channels from an I/Q converter stage at respective input terminals, each input terminal being associated to a respective signal branch;

a time-to-frequency-domain-transformer configured to perform a transformation of said first input signals from time-domain into frequency-domain, the transformation result being represented as a power spectrum of said respective first input signals;

a subtracting unit configured to receive at its inputs second input signals which are represented by the power spectra of said respective transformed first input signals and to output a gain difference as a function of frequency at its output;

a cross-correlator configured to receive at its inputs third input signals based on said first input signals, and to output a cross-correlation of said third input signals, said cross-correlation output being proportional to a phase error between said respective correlation input signals;

a gain corrector arranged in one of said respective signal branches and configured to receive at its input a fourth input signal based on said associated first input signal, wherein a gain of said fourth input signal is corrected based on said power difference spectrum such that said gain of said fourth input signal equals the gain of the other one of said first input signals; and

a phase corrector arranged in one of said respective signal branch and configured to receive at its input a fifth input signal based on said associated first input signal, wherein a phase of said fifth input signal is corrected based on said cross-correlation output, such that said phase of said fifth input signal is in quadrature relation to the other one of said first input signals.

2. (Currently Amended) A device according to claim 1, wherein

said phase ~~correction unit~~corrector comprises controllable delay elements.

3. (Currently Amended) A device according to claim 1, wherein

said gain ~~correction unit~~corrector comprises controllable amplifier element.

4. (Currently Amended) A device according to claim 1, wherein

said input unit further ~~comprise~~ comprises an analog-to-digital converter unit configured to ~~covert~~ convert analog input data to digital data.

5. (Previously Presented) A device according to claim 1, further comprising

a channelizer unit configured to receive at its respective inputs the phase-corrected and gain-corrected signals based on said first input signals associated to said respective signal paths and adapted to demodulate said signals into the respective individual channels.

6. (Previously Presented) A device according to claim 1, wherein

in one of said signal branches said first input signal equals the third input signal, while

in the other of said signal branch said first input signal equals the fourth input signal, the third input signal equals the fifth input signal, with the third and the fifth input signals being equal to the gain-corrected fourth input signal.

7. (Previously Presented) A device according to claim 1, wherein

in one of said signal branch said first input signal equals the third input signal, while

in the other of said signal branch said first input signal equals the third and the fourth input signal, and the fifth input signal equals the gain-corrected fourth input signal.

8. (Previously Presented) A device according to claim 1, wherein

in one of said signal branches said first input signal equals the third input signal, while in the other of said signal branches said first input signal equals the third and the fifth input signal, and the fourth input signal equals the phase-corrected fifth input signal.

9. (Currently Amended) A device according to claim 1, wherein

said gain ~~correction unit~~ corrector and said phase correction unit are arranged in the same respective signal branch.

10. (Currently Amended) A device according to claim 1, wherein

said gain ~~correction unit~~corrector and said phase correction unit are arranged in respective different ones of said signal branches.

11. (Previously Presented) A digital imbalance correction method, comprising:

inputting first input signals comprising a plurality of channels and resulting from an I/Q conversion;

time-to-frequency-domain-transforming said inputted first signals to perform a transformation of said first input signals from time-domain into frequency-domain, the transformation result being represented as a power spectrum of said respective first input signals;

subtracting the power spectra of said respective transformed first input signals and outputting a gain difference as a function of frequency;

performing a cross-correlation based on said first input signals, and outputting said cross-correlation which is proportional to a phase error between said respective correlation input signals;

performing a gain correction for said first input signals based on said power difference spectrum such that said gain of said first input signals equals each other; and

performing a phase correction for said first input signals based on said cross-correlation such that said phase of said first input signals is in quadrature relation to each other.

12. (Previously Presented) A method according to claim 11, wherein said phase correction comprises controlling a delay.

13. (Previously Presented) A method according to claim 11, wherein said gain correction comprises controlling an amplification.

14. (Previously Presented) A method according to claim 11, wherein said inputting further comprises analog-to-digital conversion to covert analog input data to digital data.

15. (Previously Presented) A method according to claim 11, further comprising:

performing a channelization which processes the phase-corrected and gain-corrected signals based on said first input signals and demodulates said signals into the respective individual channels.

16. (Currently Amended) A digital imbalance correction device, comprising:

an input unit configured to receive first input signals;

a time-to-frequency-domain-transformer configured to perform a transformation of the first input signals from a time-domain into a frequency-domain and to output ~~a~~ power spectra of the transformed first input signals;

a subtractor configured to receive second input signals, which are based on the power spectra, and to output a gain difference of the second input signals as a function of frequency;

a cross-correlator configured to receive third input signals, which are based on the first input signals, and to output a cross-correlation of the third input signals, wherein the cross-correlation output is proportional to a phase error between the third input signals;

a gain corrector configured to receive a fourth input signal, which is based on at least one of the first input signals, and to correct a gain of the fourth input signal using a difference of the power spectra so that the gain of the fourth input signal equals the gain of the other first input signals; and

a phase corrector configured to receive a fifth input signal, which is based on the at least one of the first input signals, and to correct a phase of the fifth input signal using the cross-correlation output so that the phase of the fifth input signal is in a quadrature relation to the other first input signals.

17. (Previously Presented) A device according to claim 16, wherein the first input signals comprise a plurality of channels from an I/Q converter stage at respective input terminals.

18. (Previously Presented) A device according to claim 16, wherein the phase corrector comprises controllable delay elements.

19. (Previously Presented) A device according to claim 16, wherein the gain corrector comprises a controllable amplifier element.

20. (Previously Presented) A device according to claim 16, wherein the input unit further comprises an analog-to-digital converter configured to covert analog input data to digital data.

21. (Previously Presented) A device according to claim 16, further comprising:

a channelizer configured to receive and to demodulate the corrected gain of the fourth input signal and the corrected phase of the fifth input signal into individual channels.

22. (Previously Presented) A device according to claim 16, wherein the input unit receives the at least one of the first input signals at a first signal branch and receives the other first input signal at a second signal branch, wherein at the first signal branch, the one of the first input signals equals one of the third input signals, and at the second signal branch , the first input signal equals the fourth input signal, the third input signal equals

the fifth input signal, with the one of the third input signal and the fifth input signal being equal to the gain-corrected fourth input signal.

23. (Previously Presented) A device according to claim 16, wherein the input unit receives the at least one of the first input signals at a first signal branch and receives the other first input signal at a second signal branch, wherein at the first signal branch, the first input signal equals one of the third input signals, and at the second signal branch, the first input signal equals the third and the fourth input signals, and the fifth input signal equals the gain-corrected fourth input signal.

24. (Previously Presented) A device according to claim 16, wherein the input unit receives the at least one of the first input signals at a first signal branch and receives the other first input signal at a second signal branch, wherein at the first signal branch, the first input signal equals one of the third input signals, and at the second signal branch, the first input signal equals the one of the third input signal and the fifth input signal, and the fourth input signal equals the phase-corrected fifth input signal.

25. (Previously Presented) A device according to claim 16, wherein the gain corrector and the phase corrector are arranged in the same signal branch.

26. (Previously Presented) A device according to claim 16, wherein the gain corrector and the phase corrector are arranged in different signal branches.

27. (Currently Amended) A digital imbalance correction device, comprising

an input unit configured to receive first and second input signals;

a time-to-frequency-domain-transformer configured to perform a transformation of the first and second input signals from a time-domain into a frequency-domain and to output ~~a~~ power spectra of the transformed first and second input signals;

a subtractor configured to receive the power spectra and to output a gain difference of the power spectra as a function of frequency;

a cross-correlator configured to receive the second input signal and to output a cross-correlation of the second input signal;

a gain corrector configured to receive the first input signal and to correct a gain of the first input signal using a difference of the power spectra so that the gain of the first input signal equals the gain of the second input signal, wherein the cross-correlation output is proportional to a phase error between the second input signal and the corrected first input signal or between the first input signal and the second input signal; and

a phase corrector configured to receive the corrected first input signal, and to correct a phase of the corrected first input signal using the cross-correlation output so that the phase of the corrected first input signal is in a quadrature relation to the second input signal.

28. (Previously Presented) A digital imbalance correction device, comprising:

input means for receiving first input signals containing a plurality of channels from an I/Q converter stage at respective input terminals, each input terminal being associated to a respective signal branch;

time-to-frequency-domain-transforming means for performing a transformation of said first input signals from time-domain into frequency-domain, the transformation result being represented as a power spectrum of said respective first input signals;

subtracting means for receiving at its inputs second input signals which are represented by the power spectra of said respective transformed first input signals and to output a gain difference as a function of frequency at its output;

cross-correlation means for receiving at its inputs third input signals based on said first input signals, and to output a cross-correlation of said third input signals, said cross-correlation output being proportional to a phase error between said respective correlation input signals;

gain correction means arranged in one of said respective signal branches and for receiving at its input a fourth input signal based on said associated first input signal, wherein a gain of said fourth input signal is corrected based on said power difference spectrum such that said gain of said fourth input signal equals the gain of the other one of said first input signals; and

phase correction means arranged in one of said respective signal branch and for receiving at its input a fifth input signal based on said associated first input signal, wherein a phase of said fifth input signal is corrected based on said cross-correlation output, such that said phase of said fifth input signal is in quadrature relation to the other one of said first input signals.